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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,632	06/15/2007	Masatsugu Oishi	90606.180/ta	2053

54071 7590 12/04/2009

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EXAMINER	
LI, JUN	

ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
12/04/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/599,632	OISHI ET AL.	
	Examiner	Art Unit	
	JUN LI	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) *10-14 and 20-25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,-9, 15-19, 26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Election of Restriction

Applicant's election without traverse of group I invention with species A (read onto claims 1-9, 15-19, 26) in the reply filed on 10/06/2009 is acknowledged.

Claim11-14 and 20-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected invention and species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10/06/2009.

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The abstract of the disclosure is objected to because it exceeds the 150 words limit. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claim 1 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as being unpatentable over Christen (US2002/0025465).

Christen teaches a fuel cell system comprising a fuel cell stack supplied with a fuel aqueous solution, a concentration detector ([0014]) to detect the concentration of the fuel aqueous solution, a temperature detector(item 11, Fig 1) to detect the temperature of the fuel cell stack, an input amount determining device (item 17, [0024]) to determine the amount of the fuel to be inputted to the fuel aqueous solution based on the concentration of the fuel aqueous solution and the temperature of the fuel cell

stack, and an input device (item 14, 15) to input the determined amount of the fuel to the fuel aqueous solution ([0009], [0012]-[0015], [0020]-[0024], clms 1-7). Christen further discloses the fuel cell system can be used in a vehicle (i.e. transport equipment) ([0005]) and a method of operating this fuel cell system (clms 8-12).

Christen also disclose using combined concentration and temperature sensor to detect the operating medium temperature as well as the concentration ([0015]).

Thus all the limitations are taught by Christen, the instant claims are anticipated by Christen.

Alternatively, it would have been obvious to one of ordinary skill in the art to either adopting a temperature sensor or a combined concentration and temperature sensor for determining the input amount as shown by Christen because both can ensure probable control for monitoring input fuel amount ([0012]-[0015]).

2. Claim 15 and 16 is rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as being unpatentable over Colbow (US2003/0003336).

Colbow teaches a fuel cell system including a fuel cell stack (item 2, Fig 1) supplied with liquid fuel such as mixture of methanol and water, a fuel controller/injector (item 5) supplying methanol into fuel inlet stream, a controller manually or automatically controlling the injector valve for injecting needed amount of methanol into the fuel inlet stream in response to a measured parameter (such as temperature) of the fuel cell ([0046], [0034], [0037]). Colbow further teaches fuel cell stack's normal operating temperature is defined by predetermined lower and upper values ([0047]) and adjusting

the fuel input amount based on the measured temperature for the desired operating temperature ([0047]) wherein a feed back controller is implicitly presented or expected. Thus all the limitations are taught by Colbow. Colbow also teaches an automated feedback system in a fuel cell system using a temperature-based compensated morality as the input to a decision making loop that controlled the methanol feed pump ([0011]).

Alternatively, one of ordinary skill in the art would have been obvious to adopt a feedback controller to manipulate a desired fuel cell operating temperature as shown by Colbow.

3. Claim 2 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christen (US2002/0025465) as applied to claim 1, 19 above, and in view of Gopal (US2004/0054483).

Regarding claim 2, 5-9, Christen is silent about the recited memory, target concentration determining device, ambient temperature detector, and historical information.

Gopal teaches different sensors including reactant gas supply sensors, temperature sensors (including fuel cell environmental temperature sensors) ([0097] (Fig. 2) memory (storing different information related to different controllers for operations) ([0053], [0056]) for monitoring fuel cell operation based on the difference of the control value and measured value to take correct action such as stopping and restart the driver application etc ([0078], [0030], [0034], [0037], [0083], Fig 3, abstract) wherein a PID controller can be used.

It would have been obvious to one of ordinary skill in the art at the time of invention filed to adopt the sensors (detectors) and controllers system as shown by Gopal to practice the fuel cell system of Christen because controlling different sensors such as target concentration, ambient temperature etc can help manipulate a desired driver application as shown by Gopal ([0078]). It is note that all the recited information operating method as recited in claim 6-8 cannot help making the recited fuel cell system distinct from the prior arts because similar apparatus have been disclosed thus similar function as recited will also be expected (See § MPEP 2114).

4. Claim 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christen (US2002/0025465) in view of Gopal (US2004/0054483) as applied to claim 1-2, 5-9, 19 above, and further in view of Ichikawa (US2003/0180583).

Christen in view of Gopal is silent about the recited time setting device, a secondary battery connected to the fuel cell, and an electric charge.

Ichikawa teaches a clock (clm. 11) a battery connected to the fuel cell (Fig 1), a sensor for detecting the state of charge (SOC) of the battery (clm. 13) in a fuel cell system wherein a controller (item 33, Fig 1) estimates the energy required to active the fuel cell (item 21) based on operating conditions at that time such as the temperature difference between the fuel cell stack and the atmosphere and the battery residual charge ([0038], [0034], clm.14).

It would have been obvious to one of ordinary skill in the art at the time of invention filed to adopt such clock, secondary battery, electric charge detectors as shown by Ichikawa to modify the fuel cell system because such elements can help

manipulating prevent unnecessary power consumption during fuel cell activation as shown by Ichikawa (abstract, [0035]).

5. Claim 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colbow (US2003/0003336) in view of Gopal (US2004/0054483).

Colbow is silent about the recited memory and PID controller.

Gopal already teaches such components as described above.

It would have been obvious to one of ordinary skill in the art at the time of invention filed to adopt the different types of sensors (detectors), memory and PID controller as shown by Gopal to practice the fuel cell system of Christen because controlling different sensors such as target concentration, ambient temperature etc can help manipulate a desired driver application as shown by Gopal ([0078]). Furthermore, adopting known technique for improving efficiency of similar apparatus/method is well within the scope of one ordinary skill in the art.

6. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colbow (US2003/0003336) as applied to claim 15-16 above, and in view of Christen (US2002/0025465).

Regarding claim 26, Colbow is silent about the recited transport equipment using this fuel cell.

Reference of Christen has been described as above.

It would have been obvious to one of ordinary skill in the art at the time of invention filed to use the fuel cell system as shown by Colbow for making a desired

vehicle as suggested by Christen because fuel cell system has been widely used in vehicle for better environmental effect.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claim 1-9, 15-19 and 26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim11-17 of copending Application No. 11814616. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed subject matter is substantially overlapping with the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

All the elected claims are rejected for the reasons of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUN LI whose telephone number is (571)270-5858. The examiner can normally be reached on Monday-Friday, 8:00am-5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JUN LI/
Examiner, Art Unit 1793
11/20/2009

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793